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THE JOURNAL OF PHILOSOPHY

THE RÔLE OF LANGUAGE IN LOGIC AND SCIENCE

IN addition to the language problems precipitated in science by questions of terminology and definition, such important current movements as symbolic logic, logical positivism, and semantic analysis emphasize the need for an adequate theory of language and its functions.

Now a study of the relevant literature indicates that language is universally reduced to symbols, while syntax or grammar is regarded as a technique for manipulating symbols. Furthermore, the proponents of the various symbolinguistic theories not only identify symbol-things with the phenomena studied in science, but also confuse the manipulations of such symbol-things with thinking and knowing. In general, symbolinguists transform language into mathematical symbols and propose to solve problems of science and logic simply by operating correctly with the right language.

When we study the actual operations of science, speech, and logic, however, we discover at once that language is not a process of manipulating symbol-things. Nor is grammar anything else than an arbitrary fixation of nebulous and shifting usages.[1] Again, such research reveals that mathematics is a language only in the metaphorical sense which transforms architecture into frozen music, and music into speech. Neither is mathematics a set of propositions which precede and follow each other irrespective of such specific facts as formal relations or natural phenomena. And finally, science with all its operations upon phenomena is not simply a linguistic enterprise, even if we do regard mathematical equations as a form of language. In this paper, therefore, we propose to contrast the interbehavioral hypothesis of language with the formalistic view concerning symbols and sentences.

THE INTERBEHAVIORAL OR OPERATIONAL HYPOTHESIS OF LANGUAGE

The interbehavioral hypothesis signifies that all human phenomena, including language, knowledge, and logic, consist of the concrete interbehavior of specific individuals with things (stimulus

[1] See J. R. Kantor, *An Objective Psychology of Grammar*, Bloomington, Ind., Indiana Univ. Publications, Science Series, no. 1, 1936.

objects). These interbehaviors are the sources of all scientific descriptions or confirmations of hypotheses, theories, and laws of logic. According to the interbehavioral hypothesis, recorded knowledge, for example, consists of a structure of propositions derived from interbehavior with phenomena under the influence of personal and cultural conditions. These interbehaviors constitute a continuum. At one point they consist of such sheer contacts as bumping into things, being cooled, warmed, injured, or nourished by them. Here the interbehaviors of the human and non-human animal organisms are very similar, varying only on the basis of differently evolved structures and concomitantly different interactions with environing phenomena. In each case we must think of an operational field in which our descriptions of what happens depend upon the factors we can analyze out of that field.[2]

Further, these interbehaviors are natural events in all respects like all other natural events—chemical, physical, geological, or any other type. All of these together constitute the matrix of events from which all scientists acquire their material. At this level we do not draw any sharp line between such humanly neutral phenomena as cosmic events or geological happenings and the interbehaviors involving human or other organisms, despite the fact that in the human interbehaviors we have tremendously large components of cultural material. In the final analysis, all the accumulations of cultural factors are obviously natural events; they consist of interbehavior of organisms and natural phenomena.

From this continuum we may also isolate the interbehaviors denominated as observations. For purposes of maintenance or simply as general orientation, human organisms have evolved such activities as curiosity and interest with respect to phenomena. This is the basis for building up knowledge for control or speculation. Both the control and orientation motives operate to develop the interrelated activites of technology and operational or experimental science. With the interrelated evolution of both these activities individuals perform all sorts of manipulative and constructive activities as phases of more general investigative interbehaviors. The simpler productive and transformative actions provide problems culminating in complicated researches concerning the origin, nature, and modification of things.

[2] The present analysis itself illustrates the process of interbehaving with complex interbehavior. Such analytic interbehavior obviously depends for its character upon the development of the individual concerned. The manner in which any individual describes his or another organism's interbehavior depends upon his training, his situation in a general culture or adherence to a particular school of thought.

We come now to that point in this continuum at which we have interbehavior describable as referring to phenomena, either to events or to the referring interbehavior itself. This is the essential linguistic phenomenon, which evolves into the descriptions of practical life, science and the elaborate formulations of logic and mathematics. Referential interbehavior consists essentially of simultaneously interbehaving with some object or event (the referent) and some referee, which may be either another person, thing, or oneself. The emphasis here is upon the immediacy of adjustment. The referor adapts himself to a fairly complex situation by vocal speech, gesturing, or writing.

All the intricate activities of human life, including science and logic, make it necessary for us to make records, and in general employ substitute stimuli for the objects and events with which we have to interbehave through long ranges of space and time. This sort of interbehavior we may call symbolic in contradistinction to authentic linguistic interbehavior. As we have seen, such behavior is characterized by the fact that substitute stimuli play an essential rôle in its performance.

Symbol behavior may be simple or complex. In the former case the person interacts with a couple, triad, etc. Thus when the person responds to the equation $x^2 + y^2 = z^2$, the various signs or symbols constitute a single psychological object, possess a single stimulus function. In complex symbol behavior the individual interacts within a symbolic situation, as when the substitute π stands for the number 3.1416. Here the response to the symbol leads to an interbehavior with the significant or symbolized.

Intellectual conventions have decreed that symbolic behavior should be called linguistic, even though the common name obscures certain decided operational differences. Possibly we may account for this illegitimate identification because of the development of symbolic from referential interbehavior. Let us consider this development for a moment. In purely referential interbehavior the individual always gesticulates or verbalizes on the basis of a behavior development conditioned by specific cultural surroundings. In other words, how the person behaves depends upon certain conventionalities of communal life. These cultural auspices give form and pattern to his activity, which occurs because of a desire to speak of something or the need to have something done. Notice that these activities can be hypostatized through the evolution of writing. They can be translated into marks serving as substitute stimuli for the referee who must now visually interbehave with what he ordinarily would hear. The speaker himself can likewise translate his speech into writing, which may remain for him a record of

what he previously did. It is this reification of the original referential behavior which has given rise to the conception that language consists of signs or symbols for things or for ideas. As we shall see, this identification of two altogether different types of operations and the consequent transformation of symbol interbehavior into the simple existence of symbol objects provide the source of many symbolinguistic difficulties.

We conclude our list of illustrations by referring to the various thinking (planning, judging, etc.), problem solving, and inferring classes of interbehavior. All of these consist of operations of the individual with immediately present or absent objects on the basis of similar previous interbehavior and under the domination of various social conventionalities. All such operations are of the same natural sort as any kind of so-called physical or biological events and do not involve any psychic factors.

Interrelation and Confusion of Linguistic with other Interbehavior

The delineation of various forms of interbehavior is, of course, only possible by an arbitrary process of isolation and analysis. As phenomena of nature they are all interrelated. Consider, for example, the operation of general and scientific description. Clearly, this form of action involves referential interbehavior, but it is just as apparent that referring to things does not exhaust the activity. In addition there are acts of pointing or indicating, as when we set down comparisons, ratios, and proportions; acts of recording, as in stating sizes, measures, etc. Studying actual interbehavior, we may differentiate between acts of pointing, whether performed verbally by gesturing or writing, and essentially referential behavior.

The artificial separation of specific interbehavioral forms is amply justified by the advantages it affords. To mention but a few: We are able adequately to understand each class of action and the way all classes are interrelated; thus we prevent their confusion. Indeed, the lack of distinction between these various types of phenomena, as much as the non-operational view concerning them, is the basis for the unsatisfactory situation in current symbolinguism. As an aid in the prevention of objectionable descriptions of symbols and syntax we indicate some conventional confusions.

First, descriptional behavior is confused with the events described. The description of an individual's interbehaving with the event (dog swallowing a piece of meat) is not the event described. Because this is a simple case, it is obvious. Actually, however, this type of confusion is one of the besetting sins of our intellectual life. For example, since we can describe the event by writing out words

or drawing a graph, we tend to forget that our present interbehavior with words or graphs is not the original interbehavior with events. Let us go further. Suppose we now focus our attention upon what has been written or drawn. Since the curves or formulae stand freed from the acts of producing them, they approach the free event and make confusion easy. When the event (stimulus object) is a thing instead of an action, the resemblance between the two makes confusion the rule. Mathematical formulae are identified with the events they only describe (analogize, represent). Here is the basis for the various idealisms, realisms, and their different mixed-breed offspring. When the basic interbehavior or operation is stressed, you have idealism; when the objects are emphasized, you have some form of realism.

The age-old confusion of the Euclidean descriptions or constructions with space is an excellent example in point. In this case the construction has been based upon a series of sublimated or attenuated contacts with spatial phenomena. The mathematician calls this a construction based upon intuition. On the other hand, when non-Euclidean geometry is in question, especially with the Einstein-Minkowski addition of time as a fourth dimension, the construction is projected as an independent existence, and we have the view that geometry is an empirical science—in other words, gives descriptions of things.

Another source of confusion of different forms of interbehavior is the identification of a describing process with other processes. Thus we find that linguistic and symbolic interbehaviors are identified with knowing, inferring, and even with investigational procedures of experimental science. When, however, we attend to the operations involved, nothing is plainer than that scientific manipulative activities, inferring, etc., are very different from the activities of referring to things or symbolizing them. How inept it should appear to confuse counting, measuring, calculating, recording, and interpreting with referring and symbolizing merely because in each case our operations include linguistic and symbolic procedures!

Two further types of symbolinguistic confusion arise with the identification of linguistic and symbolic interbehavior with the products of such behavior and with the tools employed in them. The former is illustrated by misconstruing a logical system we set up by means of particular symbols and arbitrary operations as the model or exclusive processes of thinking. Certainly the study of symbolic logic teaches us that numerous postulational systems may be erected. If we endow any particular system with the generalized properties of all logic, we do so at our own risk and with the high probability that we shall fail to achieve the advantages desired

from our system. According to the interbehavioral hypothesis we can not regard the deductive procedure of geometry as the essential type of reasoning, just as we can not regard any form of geometry as *the* geometry. Each form of reasoning and each form of geometry constitute definite constructions for particular purposes based upon certain particular assumptions and conditions. Unless we are alive to these conditions, which may be cultural as well as immediately technical, and to the assumptions which are derived from particular situations or the summation of a number of situations, we shall inevitably confuse our activities with the products resulting from them.

Mathematicians who regard mathematics as symbols and functions of symbols, and logicians who look upon logic as sentences or propositions which imply other propositions illustrate the confusion of interbehavior with the tools they use. An excellent example is the statement that "a false proposition implies any proposition." Observe how striking this sort of confusion appears when these same mathematicians and logicians are troubled by questions of relations between signs and their significants or meaning. The choice and evaluation of signs amply testify to the interbehavioral or operational character of both logic and mathematics. As a matter of fact, the perennial occupation of thinkers with linguistic problems is no more than a just tribute paid to the activities of individuals in their interbehavior with phenomena, even when this interbehavior constitutes abstruse logical or scientific work.

This particular difficulty of symbolinguism is in all respects like that in which the symbols or other constructions, developed as substitute stimuli for contacts with things (events or relations) or imagined objects, are treated as the things substituted for. In this way arise the various formal (logical, verbal) and content (sensationistic) mysticisms.

Is not this review of symbolinguistic confusions witness to the fact that language is only one form of interbehavior among many others? Likewise that it is not a general or basic phenomenon which can control or validate all other complex activities, as, for example, the semantic analysts imply. Certainly, syntax or arrangement of symbols is not logic or mathematics, unless we arbitrarily make these disciplines identical with abstract system. It is perfectly clear that all who make symbolinguism a basic enterprise in logic and science are capriciously apotheosizing thinking *ueberhaupt*. Applying the interbehavioral hypothesis, we find revealed many special types of interbehavior with particular kinds of stimulus objects.

The interbehavioral hypothesis further suggests that valid logics

and knowledge systems can only be based upon concrete operations under the control of the investigating individual. Only when we interbehave with natural phenomena or with symbolic systems without too much prejudice imposed upon us by our general culture do we have valid criteria for our thinking and scientific constructions. In short, our linguistic constructions must all be made with a clear appreciation of our intellectual background. When we act by referring to certain phenomena—what is popularly called communication—or when we use marks or symbols for recording and manipulating phenomena at a shorter or longer remove, notice that we are interbehaving differently from when we operate with or manipulate things or relational systems. Science and logic obviously involve a large variety of different types of operation, but instead of this fact excusing misconstructions it places upon us the heavy obligation of avoiding such intellectual calamities.

Symbolinguistic and Operational Treatment of Symbols and Syntax

The striking differences between symbolinguists and the proponents of an operational theory of language loom large in their respective contrasting techniques concerning both symbols and syntax. It may prove helpful to review some telling examples.

A. Symbols

Symbols and Essences. Current symbolinguism assumes that symbology implies essentiality. In other words, the symbolinguists, building upon the ideas of historical rationalism, regard signs, marks, or characters as carrying within themselves certain essences, whether arithmetical operations, number or class values. Exemplifying this assumption is the popular conviction that number marks as against ordinary words are exclusively materials for mathematical processes.

Now turn to the interbehavioral view. A symbol is a mark or character that operationally stands for something. Only through the work of mathematicians [3] do mathematical symbols fit themselves into operational systems. We can not therefore regard these marks as "expressing" a reality independent of the particular systems.

True enough, certain marks or characters are better than others for particular purposes. Was it not a great achievement of Vieta and others to adopt letters instead of number signs for algebraic

[3] Cf. A. F. Bentley, *Linguistic Analysis of Mathematics*, Bloomington, Indiana, Principia Press, 1932.

purposes and to use consonants for known and vowels for unknown quantities? Just as it was a step forward in mathematics in general to exchange Roman for Arabic notation. Yet no one will claim that mathematics itself—namely, numerical problems, reflection, and other operations—arises out of the particular notations. Though Leibniz's integral notation was regarded as superior to Newton's, is it not a fact that if we could override our cultural habits, we could invent a still better notation?

Concealed in the thinking of symbolinguists are certain assumptions concerning psychic forces. These forces called concepts are presumed to operate especially well in linkage with particular signs. But this merely amounts to an oblivescence concerning the actual operations performed. For example, it is undoubtedly true for number signs that when we have thoroughly abstractionized phenomena—say, the relations between things—and set up conventional signs ($2+2=4$ or $a+b=c$) to stand for them, the association is well and effectively established. Furthermore, the great power of cultural tradition gives such associations a seeming finality and permanence.

The Independence of Symbols. Only Dean Swift's potent imagination could create autonomous word symbols which by mechanical operations combine themselves into philosophical, poetical, or mathematical books. When dealing with numbers—signs abstracted from numbered things—symbolinguists tend to regard these signs as similarly independent. The great fallacy here is overlooking the relational background governing the operational functions of the signs. The fact that we can not add pigs to pencils keeps company with the principle that when we count significantly different objects, the symbols for the resulting numbers are in no sense independent of the objects.

That even the most abstractive symbols are not autonomous is exemplified by the following symbolinguistic quotation:

> Mathematics is not an activity but a calculus, and . . . the activity comes in when we carry out investigations about this calculus within the physical science.[4]

Whenever the calculus is actually used—in other words, regarded as an actual operational tool rather than as an ornamental thing—it loses its autonomy. Though this quotation stands upon logistic rather than constructional mathematical ground, Helmer's discussion indicates that a calculus can not be independent of the postulates and working methods of the construction.

Dwell for a moment on the problems encountered by mathematicians and physicists when they are concerned with units. Here

[4] O. Helmer, "The Significance of Undecidable Sentences," this JOURNAL, Vol. XXXIV (1937), pp. 490–494.

the interdependence of numbers and things is manifest. In a recent book Osgood [5] objects to the equation 3 ft. = 1 yd. as indicating that the *same* line has a length of 6 when the foot is the unit and of 2 when the yard is the unit. He goes on to say:

> But this makes confusion worse confounded; for 3 = 1 is not true, while, on the other hand, to try to introduce "concrete numbers" like 3 ft., 10 lbs., 5 secs., into mathematics is not feasible.

Campbell,[6] accepting the view that "a number can express a quantity only when the unit of measurement is stated or understood," [7] counters:

> From the equation 3 ft. = 1 yd. there is no more reason for writing 3 = 1 than there is from the equation $3x = 2y$ for writing 3 = 2.

He adds:

> With Osgood a symbol or letter always signifies an arithmetical number. But why should it not be used to designate a *physical quantity*, or "concrete number" as he calls it? If s is the position of a point at time t (units included implicitly in both s and t) then ds/dt is the velocity (units included) at time t.

Campbell characteristically summarizes his view with the inevitable suggestion that the whole problem is solved by using homogeneous units.

> By a homogeneous system of units is meant: If in a general physical equation a set of corresponding values is substituted, units as well as measures, and if, with the units deleted, the resulting equation (in measures alone) remains true, then the units used belong to a homogeneous system.

Howsoever agreed we may be upon the situation in which our symbols are employed, and howsoever unnecessary in consequence it may be to allude to that situation, the symbols are only valid and usable in that situation. In point here are the remarks of Bridgman [8] concerning the need of a text for understanding equations.

The Clarity of Symbols. That symbols must be clear and unambiguous is an obvious necessity of exact thinking. These properties, then, are not only interbehavioral necessities, but also the results of interbehavior. Even number symbols, which Leibniz regarded as the paragons of clarity, derive their unambiguity from particular operational situations. Such situations contrast with symbolic context. They constitute the interbehavioral conditions under which symbols are developed and employed.

[5] W. F. Osgood, *Mechanics*, N. Y., Macmillan, 1937, p. 77.

[6] *Science*, Vol. 86 (1937), p. 441.

[7] A. E. H. Lowe, *Theoretical Mechanics*, Cambridge Univ. Press, 1906, p. 362.

[8] *The Nature of Physical Theory*, Princeton, Princeton Univ. Press, 1936, ch. 6.

Unless we take account of the dependence of symbols upon the individual's concrete interbehavior with specific problems and circumstances, symbols are far from being infallible guides to accuracy and reality. Rationally conceived, they can and do persistently operate to befuddle the user. Rationalistic symbology has not only created havoc in the practical and philosophical thinking of workers in every field—economics, politics, religion, etc.—but it is also the basis for the mysticism of mathematics. To the prevalence of rationalistic symbology may be accounted the great space and effort devoted to the discussion of symbols in language and thought.

The Absoluteness of Symbols. Wittgenstein states (*Tractatus* 3.26) "the name can not be analyzed further by any definition. It is a primitive sign." This pronouncement points directly to the anomaly that, in an operational and relativistic culture like ours, Renaissance cosmo-theological ways of thinking still prevail. Obviously the above proposition can only be accepted by taking into account the operations of the name given. We may consider two such operations.

In the first, the naming process stresses the naming operation. This signifies that the name is a pure symbol for something. A word identifier is connected with a planet. Such a situation may be taken as absolute. A symbol stands for what it is made to stand and there is nothing more to be done about it. Anyone who will, may declare as senseless any tampering with this procedure, especially when situations involve formal symbols. But whatever strict connection there may be between the name and the object or relation arises from the particular operation; at all events, it is done first or exclusively by one person. In all likelihood, it is impossible to overlook the cultural influence upon even the most abstruse and exacting disciplines. The obligation is ours therefore to make certain that our linguistic practices keep pace with changing cultural conditions.

Such naming prompts no serious question of immediate propriety, except that we can never assume a cosmic connection between the name and the object. The case is quite otherwise when the naming concerns the nature or properties of objects, in which instance one may well question whether a thing has been properly named or not.[9] Not infrequently, also, we can check any naming or valuing of a symbol if we are able to show that such an operation will interfere with further operations within the system.

Abstractness of Symbols. Nowhere is the contrast between the symbolinguistic and operational views of symbolism greater than

[9] For an informing statement of the importance of names in science see E. J. Crane, "Words and sentences in science and industry," *Science,* Vol. 86 (1937), pp. 549–553.

in the province of definitions. The symbolinguists' abstractionistic view influences them to look upon definition as the substitution of one symbol for one or more other symbols connected with some thing. To this rationalistic view is traceable all the controversy centering around nominal or verbal and real or causal definition.

The interbehavioral view requires that questions of definition must always be based upon definite activity in an operational system. Prominent here is the interbehavior of the defining individual with objects of all sorts under innumerable conditions influencing the defining operations. As a rule, therefore, from the operational standpoint defining activities are much more complicated than from the rationalistic angle. Such operations, whether fundamentally descriptive or casually identifying, are of course necessarily abstractive. But this abstraction is itself operational and can not be confused with bare signs standing for existent or subsistent things. Only by neglecting the actual field of operations can we regard symbols as unlocalized and non-specific. Moreover, problems involving symbols can only be solved when symbols are regarded as concrete objects, tools for accomplishing results. In order to illustrate varying views concerning the use of symbols we briefly review the opposition between the three current mathematical schools.

The Logistic School. Proponents of this school emphasize the systems in which they operate. For the moment we are not concerned with the question whether they do or do not overemphasize the autonomy of their systems, but rather that they evaluate their symbols in terms of the systems and manipulate their symbols accordingly.

The Formalistic School. The formalists, quite contrariwise, stress their symbols in abstraction from the systems in which they fit. Naturally, symbols can not be handled except in terms of systems, but the formalists regard these systems as meta-mathematically determined and hence more or less divorced from their symbols.

The Intuition School. The proponents of intuitionism are primarily interested in the operations with symbols. Accordingly they stress freedom from operational restrictions. "Most of them agree in emphasizing mathematical thought and distrusting the excessive use of symbolism."[10] For this reason they regard mathematics as independent of certain abstract conventional rules, especially the law of excluded middle.

In all three cases there are definite operational principles governing mathematical work, though there is a stress of some one factor in

[10] M. Black, *The Nature of Mathematics*, N. Y., Harcourt, Brace, 1935, p. 172.

the operation rather than another. Certainly the difference between the three schools is not merely one of what kind of language (symbol system and manipulation) is being used, as the symbolinguists declare.

The Arbitrary Character of Symbols. As a final comparison of the symbolinguistic and interbehavioral views concerning language in mathematics and science we consider the problem of arbitrariness in the choice and use of symbols. The indefinable and the infinite serve well as illustrations.

The growing realization that an indefinable is always definable in terms of a particular operational situation adds weight to the interbehavioral view of arbitrariness in symbological activity. An increasing number of writers assert that an indefinable is a symbol or factor chosen as a starting point for particular operations. Taking the desired operations into account we can describe or define the factors with complete satisfaction. Arbitrariness, then, can not signify simple choice of given symbols except as taking given means for a certain end. Here arbitrariness is operationally only selection, as when Euclid adopted certain propositions as definitions, postulates, and axioms.

Actually, then, there is little disagreement between the symbolinguist and interbehaviorist. But the latter goes further. The adoption of the interbehavioral hypothesis forces him to consider the deriving source of starting materials. It may be the (1) intuitive source, as in Euclid, (2) some arbitrarily chosen factor, as in the case of the mathematicians who build up arbitrary (logical) systems, or (3) some other culturally conditioned circumstance.

One of the best illustrations of operational arbitrariness is the handling of the mathematical infinite. When it is said that only by discovering the infinite has the mathematician been able to reach his peak of capacity, we may take this to imply that he was forced to take over this symbol or tool, or we may regard the infinite as a heuristic principle suitable for accomplishing certain results. When we observe that the arbitrariness is concrete in the sense of adopting an analogy or a scaffolding to attain a desired result, we do not confuse the operational tools with some absolute theory which imposes itself upon us.

B. Symbol Configurations or Sentences

The points made concerning symbols apply in equal measure to symbol configuration. Here, however, the systems are stressed. Because symbolinguists insist upon the formality of such systems, they interbehave with their own verbal and symbolic constructions, de-

riving whatever support they can from the conventionalities of mathematics.

The untenability of the formalistic attitude toward sentences is excellently illustrated by the changes in that attitude. Although symbolinguists originally asserted that statements not admitting a truth decision or verification [11] are metaphysical and void of sense, they finally had to abandon that position. In the first place, since they are such extreme abstractionists, they had to adopt the notion that this verification need only be theoretically imagined. Again, they face the problem that perhaps probability must be substituted for clearcut truth. Likewise, they are confronted by Gödel's argument that the majority of calculi, including classical mathematics, contain demonstrably undecidable propositions. Confirmability they exchange, therefore, for verifiability.

Although there is occasion here for abandoning the formalistic notion of sentences or propositions as symbol configurations, this step is not taken. Instead of turning to concrete interbehavioral situations, the symbolinguists move toward absolute abstractionism.

> For an expression must be recognizable as a sentence before any such property as demonstrability or undecidability can be attributed to it, and it would not make sense to say that *S* is undecidable and therefore not a sentence.[12]

Supporting the interbehavioral hypothesis is the adoption by even extreme formalists of many valued propositions. The addition of such values as possible, impossible, probable, along with truth and falsity, bespeaks a need to consider the actual situation at hand. The suggestion here is to follow through the operations of a logician when he infers or implies something as an objective observational fact. When the propositions have to do with researches upon natural phenomena, we invoke in addition whatever tests of the propositions the various situations demand.

Logical and Scientific Consequences of Operational Linguistics

We conclude this paper with a summary of some of its outstanding points and some suggestions of implied consequences for science and logic.

(1) Linguistic phenomena are forms of interbehavior with stimulus objects. Such behavior is essentially referential and basic to the development of other kinds of interbehavior—for example, counting, naming, verbally symbolizing and describing things, events, etc.

(2) When such reactions as counting, naming, describing and verbally symbolizing things are developed, they constitute coördinate

[11] See, for example, Wittgenstein, *op. cit.*, 4.06, 4.162, 4.2, *et passim.*

[12] Helmer, *op. cit.*, p. 494.

interbehavior with referential language and with such activities as observing, calculating, knowing, thinking, inferring, etc.

(3) Symbolization interbehavior constitutes a special form of activity derived from referential action. This is essentially a case of interacting with something through a substitute stimulus. Because words are frequently used as such substitutes, symbolizing is frequently confused with referential interbehavior. The realization that number and other sorts of substitute stimuli are similar to word substitution has led to the erroneous tradition that mathematics is a language.

(4) Interbehavior must be distinguished from the objects interbehaved with, including those derived as products of interbehavior. To slur this distinction results in the identification of a factor in an interbehavior with the total event. Signs and characters are frequently confused with symbolization processes, although they derive their symbolic value from the problems and other conditions initiating the interbehavior.

(5) A consequence of the interbehavioral hypothesis is our ability to localize scientific difficulties as: (*a*) faulty observation, (*b*) confusion of description and described, (*c*) confinement to symbols instead of events, (*d*) confusion of symbols or descriptions, etc.

(6) It follows from the coördination of linguistic, symbolic, observational, experimental, reflective, and other interbehavior that linguistic and symbolic behavior by itself neither makes nor mars the other kinds. When, however, linguistic and symbolic responses form parts of larger activities, they must be adequately performed; otherwise the total operational system may be adversely affected.

(7) When we look upon language (references) and symbolization as concrete interbehavior, we avoid all subjectivisms and solipsisms. This holds for transcendent reasoning as well as for intuitional indulgence in personal states of consciousness.

(8) Another consequence is that we can observe the linguistic means by which general cultural and specific ideological traditions operate to transform interbehavior into something else. It is well known how fear of ignorance and hopelessness in the face of it induce us to create intellectual fortresses and certainties by exercising our capacities for linguistic and symbolic construction. When we keep strict vigilance, however, over our verbal or other symbolic constructions we will not identify them with subsistent or transcendent entities of any kind.

(9) Finally, the interbehavioral hypothesis encourages us properly to evaluate every form of scientific and logical work. From an interbehavioral standpoint we may accord the construction of formal systems its proper place in the intellectual scheme. When we ob-

serve the interbehavior of mathematicians and logicians we understand how relativity theory could be constructed on the foundations of abstract geometry and formal calculus. Such observation reveals the analogy between (*a*) fitting abstract logical constructions into systems which lead to the understanding of natural phenomena and (*b*) applying a purely technological process to the solution of scientific problems. The significance of this point is that when we confine ourselves to the activities of individuals in their operations within a material and cultural environment, we embrace the virtue of tolerating the idiosyncrasies of thinkers and technicians and reject the vice of introducing social service prejudices into intellectual fields.

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BOOK REVIEWS

A History of Philosophy. B. A. G. FULLER. New York: Henry Holt and Company. 1938. Two volume edition. Vol. I: *Ancient and Medieval Philosophy,* ix + 417 pp. ($2.20); Vol. II: *Modern Philosophy,* 675 pp. ($2.80). One volume edition, $3.80.

Both the author and his publishers are to be congratulated in having succeeded in compressing so much material within the covers of a single volume for the convenience of students who want a compact and comprehensive survey of the history of philosophy. Instead of restricting himself to the few leaders or to the major currents of thought, Professor Fuller has introduced more than one hundred and fifty figures, great and small, and these not merely by name, but with at least a brief indication of the importance of their several contributions. The net result is massive, if not monumental. However, it should be said that this is no mere compendium of philosophical systems. In general, the transitions from one thinker or period to another are handled in a convincing fashion and a definite sense of continuity is imparted to the whole work by the author's confessed "leaning towards naturalism and materialism" (p. iv).

The three earlier volumes of his *History of Greek Philosophy* (see this JOURNAL, Vol. XXIX, 1932, pp. 24–26) are here condensed into five chapters, to which have been added a chapter on "The Post-Aristotelians," one on "The Neo-Pythagoreans and the Neo-Platonists," and one on "Philosophy, the Handmaid of Christianity," bringing the first part of the book down to the year 1453. The second and longer part begins with a chapter on "The Renaissance and the Reformations" and ends with one on "Contemporary

Philosophy," dealing with pragmatism, Bergson, Vaihinger, Croce and Gentile, the revival of pluralism (B. P. Bowne and H. Wildon Carr), and neo-realism. Under this last heading are included (strangely enough with no mention of the American neo-realists), Meinong, Husserl, Bertrand Russell, Whitehead, G. E. Moore, S. Alexander, Neo-Scholasticism, and Santayana. The reason for this rather promiscuous grouping may be that, as the author remarks, "we may expect . . . realism to look somewhat pop-eyed for a time." But he hastens to add that "it will not look nearly so wild-eyed as the idealisms of the future. . . . For whereas naturalism and materialism never made a God of matter, idealism did make a God of mind. . . . But today to say that all things are mind is to tell a different and not so edifying a tale of them. Nevertheless, idealistic metaphysicians having espoused mind for better, for richer, and in health at a moment when psychologists assured them its prospects were rosy, must put up with it for worse, for poorer, and in sickness, now that psychologists assure them its prospects are not so good" (Vol. II, pp. 626–627).

The book has a crisp, informal, and racy style of exposition, which marks it off from similar textbooks in the field. The author has evidently taken pains to make his subject entertaining and unpretentious for the general run of undergraduates in American colleges and universities. To use one of his favorite colloquialisms, he has tried to show them that philosophy "has a punch to it." Unconcerned about anachronisms, he has drawn his illustrations from the realms of modern business, industry, and competitive sport. His discussions are liberally seasoned with current slang. There are, to be sure, certain disadvantages connected with this method of presentation. Much of the slang that intrigues the undergraduate mind today may seem stale and outmoded tomorrow. No doubt it is a relief to substitute the refreshing familiarities of Professor Fuller's style for the dry, pedantic mannerisms of the academic tradition. But in being entertained a student is not necessarily being instructed. There is a danger that the very ingenuity of the illustrations may cause him to lose track of the argument, or that too much familiarity of style may breed contempt for the content; (cf. the discussion of the Stoics' arguments under the metaphor of a modern artillery duel, the representation of Hylas and Philonous as a pair of boxers—"suddenly Hylas punches Philonous hard on the jaw, and leaves him a bit groggy," and so forth). Here is, in last analysis, perhaps, a question of taste on which other readers may differ rather widely.

But these are minor points of criticism. The exposition as a whole is singularly clear, well balanced, and free from partisanship.

There are many passages in which, considering the limitations of space, the treatment of the subject-matter leaves very little to be desired. Among these may be mentioned the parts dealing with the Platonic theory of knowledge, with Aristotle (especially section IV, "Biology and Psychology," VII, "Ethics and Politics," and VIII, "Theory of the Fine Arts"), with Plotinus, with "The Renaissance Spirit," and with Leonardo da Vinci. Other passages equally worth noting are the eloquent account of Luther and the Protestant Reformation (in which the author rather amusingly betrays his antipathies towards the philistinism of the reformers), the discussion of Spinoza (in which the author's naturalistic leanings are just as evident), the concise summary of Locke's *Essay,* calling attention to the *negative* significance of Locke's doctrine when he deals with the ideas of infinity, power, substance, cause and effect, identity, and showing how the skepticism of Book IV is entailed by his distinction between "real" and "nominal essences" in Book III, and finally the two sections on Kant's *Critique of Judgment,* which in most textbooks is completely overshadowed by the first *Critique.*

By far the weakest part of the book, it seemed, is the single chapter devoted to medieval philosophy. The author's unfavorable estimate of this period can be gauged from his statement that Plotinus was "the one philosopher of high eminence to intervene between the tremendous mountain-range of Socrates, Plato, and Aristotle, and the splendid solitary peak of Spinoza" (Vol. I, p. 185). The discussion here is based entirely on second-hand sources (Gilson, De Wulf, and Ruggiero are named, Vol. I, p. 328n.), and these authorities have not always been used to best advantage. Thus, the whole point of Gaunilon's "objection on behalf of the fool" is lost because Professor Fuller has apparently confused the more famous "ontological argument" in the *Proslogium* with St. Anselm's "cosmological" arguments in the *Monologium* (Vol. I, p. 354). The section on St. Thomas Aquinas might well have been improved by a more careful scrutiny of the scholastic distinction between essence and existence. One wonders, moreover, what could have been Professor Fuller's authority for the statement that St. Thomas "deserted the Aristotelian position that forms exist only in particular objects, and made them ideas and archetypes in the divine mind." And certainly there is nothing in either Gilson or De Wulf to warrant the assertion that, for Aquinas, "there are no forms of individuals," or that "no angel is, properly speaking, an individual," but "each is a species unto himself" (Vol. I, p. 381), or that angels, "being disembodied, must be species not individuals" (p. 385). Had this been his view, consistency would have required

him to deny the existence of angels, since, as he so often insisted, *nihil est praeter individuum.* From the proposition that there is only one member of a species it surely does not follow that this member is not an individual.

The volume is provided with brief, but adequate, classified bibliographies, a "list of some of the works of philosophers of the present and the recent past," a useful chronology, and a glossary based on Lalande's *Vocabulaire de la Philosophie.* This reader was able to detect only three misprints: Vol. I, p. 10, 1.31: "with" for "and"; Vol. I, p. 383, 1.8: "imminent" for "immanent"; Vol. II, p. 596: "H. Weldon Carr" for "H. Wildon Carr." It would help obviate a not uncommon error if, in the Index, p. 659, the two Zenos were to be dissociated.

D. M.

Knowledge and Society: A Philosophical Approach to Modern Civilization. G. P. ADAMS, W. R. DENNES, J. LOEWENBERG, D. S. MACKAY, P. MARHENKE, S. C. PEPPER, E. W. STRONG. (Century Philosophy Series.) New York: D. Appleton-Century Company. 1938. xiii + 417 pp. $2.75.

To many readers the most striking thing about this "introduction to the adventure of philosophizing" will be the spectacle which it affords of seven members of a single department engaged in a collaboration that is something more than the assembling of somewhat similar contributions. The authors "offer it as a product for which the responsibility is collective rather than distributive. . . . The work is the work of all of us. . . . We have made our individual contributions, and each chapter bears in some measure the stamp of the author who originally drafted it. But in revising our individual contributions, we have found it possible to compose our differences and to adopt a common attitude and a common language." This does not, of course, imply that all their philosophical differences have ceased to exist, or that the California department has become a single "school" in the sectarian sense.

What gives the book a unity of which the authors may be justifiably proud is the common attitude toward the nature and function of philosophy which all its chapters exemplify. This is well expressed by Professor Lamprecht in his editor's introduction. "Philosophy," he remarks, "is not one subject-matter among many, but the art of reflection when reflection is thorough, sustained, and aware of its far-reaching implications . . . it is the sophisticated and subtle treatment of any subject-matter, whether that subject-matter be the nature of physical objects, the validity of religion, the seat of sovereignty, or the relation of money and wealth . . . it is the

practice of restless reflection, the critical examination of the meaning of what elsewhere might be taken as conclusive and established . . ." It follows that the primary aim of the teaching of philosophy should be "to cultivate in students a love for the intellectual life . . . the habit and enjoyment of reflection." How shall this be done? Certainly one way is to take nothing less than the whole panorama of modern civilization as one's subject-matter, and to try to make a reflective survey of its confusions and complexities. And indeed just such a "thoughtful approach to contemporary culture" is the gigantic task which these authors have undertaken. They admit that "philosophy covers more than what we here make central, but it certainly includes the problems and issues which we have selected for connected discussion."

The volume justifies its title by concentrating on two main problems: "What constitutes a true understanding of our world, and under what conditions may it be achieved? What is the good life, and how may it be realized?" The two parts are connected, however, by a single theme which runs through the whole: "Intellectual systems and social structures are the result of men's strenuous and continual effort. They are not divine gifts but human constructions. But men do not construct bodies of knowledge or forms of society out of nothing . . . at every level in the course of knowledge and in the life of society, men seek to modify what they find" (p. viii). Thus "knowledge and society are but comprehensive and summary terms for the never-ending interplay of conformity and purposive activity in our human experience. The meaning of knowledge is primarily on the side of conformity with facts, while society means rather the structures expressive of human needs and interests. . . . But knowledge is not entirely passive conformity, nor is society merely a setting for revolutionary transformations" (pp. 382, 385).

The early chapters of Book I trace in rather sketchy fashion the emergence of critical theorizing from the inconsistencies of common sense, and the development of such logical devices as names, classes, enumerations, and measurements. These tools and the methods of agreement and difference are useful in discovering and formulating what the authors confusingly (in view of its technical meaning in statistics) call "correlations" of sets of characters in nature, which may in turn lay bare genuine causal relationships. Hypotheses constitute "the chief organizing and evaluating function in the refinement of knowledge"; but "the traits of a good hypothesis are all relative, and it is not easy to say precisely to *what* they are relative." The authors regard the four principal theories about the nature of hypotheses: conventionalism, operationalism, descrip-

tivism, and legalism, as themselves hypothetical. The only suitable criterion of choice among the theories "is in the evidence, and it is the evidence itself that has generated the multiplicity of theories and the disagreements among them" (p. 79).

This swift review of the refinement of knowledge known as scientific method leads to the field of metaphysics, where numerous "world-hypotheses" purport to go beyond the range of science. Metaphysical mechanism is contrasted, for purposes of illustration, with organicism or objective idealism. We learn that "the proponents of these two theories fought each other to a standstill in the nineteenth century and the present dearth of speculative philosophy among competent thinkers may have been caused, to a large extent, by the exhausting effects of that historic contest. The ranks of professional philosophers today are largely composed of skeptics and positivists, leaving it to the physicists themselves to carry on most of the speculation. A more fitting attitude for philosophers, however, might consist not in a deliberate aversion to metaphysics, on the ground that no theory seems capable of vanquishing all the others, but rather in the recognition that several theories may be equally adequate, and all of them necessary, for a properly balanced, well-rounded philosophical insight into the modern world" (p. 105). Aside from the comment that eclecticism nearly always offers just one more allegedly inclusive metaphysics of its own, is it not also true that the reason why most contemporary philosophers leave speculation about science to the physicists is simply that few philosophers are sufficiently equipped to attempt it themselves?

The chapter on "Philosophical Aspects of Religion" finds "the defining characteristics of the religious attitude" to be the fundamental contrast between the actual order which man encounters and the ideal order which he envisages. It is because religion has been, historically, "the main vehicle through which man has declined to take the actual world of common sense as final and ultimate," that "an understanding of religion is essential to the serious study of philosophy." As an example of critical analysis of a problem which stretches all the way from theology to psychiatry, the authors present a minute dissection of free will which vindicates determinism by ridding it of the notion of compulsion, and rather dubiously "solves" the theological problem of the alleged incompatibility of God's goodness and omniscience. A careful discussion of skepticism and agnosticism, wherein it is shown that "it is against dogmatism, not doubt, that beliefs need to be made secure," concludes the part on knowledge on a relativistic note. Man yearns incorrigibly for categorical truth about the whole universe; but the best he will ever get is a hypothetical and tentative understanding.

In the second half of the book, a mighty attempt is made to bring into a satisfactory synthesis three distinct orders of ideas now badly dispersed: theories of reality, actual social institutions, and the ethical ideals which stand between them. Medieval society united the three in terms of security; modern society (still half-medieval, it should be noted) is struggling to achieve a system of individual freedom. In discussing the knotty problem of economic freedom, the authors discover that "unfortunately, the Constitution does not guarantee economic security"; and conclude mildly that "the democratic countries of the world will have to make some rather fundamental changes in the structure of the economic mechanism if their social systems are to survive" (p. 266). They seem to have an inkling of how hard it is to curb the "limiting" of free competition, once regulation gets teeth in it; but they are surprisingly optimistic about the probable resignation of the "haves" in the face of dwindling profits and power.

A useful biological analysis of the meaning of natural security points out that the extremes of economic individualism and societarian collectivism rest upon a "now discredited psychology" of universal purpose or none at all. Once purpose is conceived in the specific sense, security becomes "a function of the progressive organization of individual intelligence." The goal now plainly indicated is "the democratic liberation of mankind," and the quarrel between socialism and individualism is a dispute over means and not ends. So is the controversy over revolution *versus* reconstruction, in which the authors as "social liberals" come out strongly for gradualism and arbitration. They recognize that reconstructive methods have come late into the modern arena, and "are still being opposed by the proprietary interest in modern industry." But if, like the authors, in a possibly revolutionary situation, one is to plead for non-revolutionary methods, to whom shall the appeal be addressed? Whence shall the advocates of impartiality draw their support? What resources has middle-path liberalism in a time of crisis compared with those behind the forces that cleave society? The authors seem at times to rely upon a mere confusion of class interests as a preventive of conflict. Intelligence calls for a joint solution of joint difficulties; but who calls for intelligence? And will intelligence, even if called for, be given time to make itself heard?

A brief but stimulating summary of the views of James, Royce, and Dewey concerning individualism concludes the volume and gives it additional revelance to distinctively American thinking. As in any discussion of society and the individual, Dewey shines by comparison with his predecessors to whom he, of course, owes much.

The book is entirely free from lists of reading or exercises, but these a teacher could supply if wanted. The standard of writing is high; and in most of the chapters there is evident a resolute determination to avoid unnecessary technicalities of language. Although there are many topics, both in modern life and in philosophy, which the book does not plumb, it has great merits as an example of what persistent reflection can do and can not do in resolving current (and perennial) perplexities. As an attempt to show that a group of philosophers can find much in common to say intelligibly about the issues of their time it is worthy of the highest praise. It is probably typical of our day in telling less about what knowledge is than about methods of getting it, and a great deal less about what the good life is than about how to organize it. No undergraduate, however, could read it seriously without a new and a solid respect for the modest claims which it makes in behalf of philosophical inquiry in a tumultuous world. He might find some of his intellectual adventuring already done for him, but he would almost surely come away with the conviction that there was plenty more to do.

H. A. L.

Æsthetic Quality. A Contextualistic Theory of Beauty. STEPHEN C. PEPPER. New York: Charles Scribner's Sons. 1937, 1938. ix + 255 pp. $2.00.

Professor Pepper has, in my judgment, written one of the most illuminating and engaging contributions to esthetics that has appeared in many years. In the first place it is illuminating because the reader, whether he agrees with every detail of the theory or not, will feel throughout what in one way or another everyone feels to be a central fact of the esthetic experience, the awareness of quality. Professor Pepper is at his best in his explanation of what quality is, and how it is enhanced and apprehended. The book is engaging and persuasive because it avoids merely invidious polemics, and frankly states the point of view from which it is written: that of a modified pragmatism, called by Professor Pepper "contextualism." It is convincing because with sensitiveness and scrupulousness it indicates and clarifies the organizations and schemes, psychological and technical, which contribute both to the enhancement and to the spread of esthetic quality. I do not see how anyone could read Professor Pepper's book without feeling that the author was keeping his eye on the experience of beauty and trying to understand directly what contributes to it. He himself sees, and indeed specifically insists, that any discussion of esthetics raises other problems, ultimately those of metaphysics and morals. But it is not in this book that Professor Pepper discusses metaphysics and morals

and this notice will therefore follow the author's lead and discuss what he actually is concerned with in this volume.

"Quality is the life of art, organization the body." This sentence (p. 114) is a summary of Professor Pepper's thesis. "The æsthetic field," he says earlier (p. 19), "is that of the quality of events." The actual quality is the fusion of many elements that enter into a given esthetic object. The elements involved are not simply physical ones; they involve schemes, such as those of a scale; interests, such as major human drives; types, such as the sonata form in music; design, the organization intrinsic to a given work of art. Design, it is important to note, Professor Pepper is at some pains to distinguish from pattern. Pattern is the arrangement of elements in a scheme in a given work of art; the selected elements refer to a scheme, and the arrangement of the selected elements derives its contour and meaning from a scheme or pattern which is utilized and utilizable in many works of art. The author is at pains to keep his eye on the central fact of quality felt totally and as a fused unit. He is equally at pains to study the ways in which an artist renders quality deeper, more intense, and more pervasive.

Professor Pepper tells us that beauty is "enhanced quality." He ingeniously shows the way quality is enhanced by reminding us of the way in which quality is deadened. For the qualitative aspect of experience needs no demonstration to children, nor do they require any deliberate devices on the part of artists to feel quality in the world in which they live. Quality is deadened through three things: through practical activity, through intellectual (analytical) activity, and through regular (monotonous) activity. The function of the artist *qua* artist is that of putting us into the delighted presence of those edged and individual characters which all events would have if business, analytical dissection, or routine did not prevent us from realizing them. "In practical activity . . . we reduce to the minimum the qualities of events, because the whole aim of the activity is to expunge a disrupting quality" (p. 48). In analysis "quality is dispersed as a result of abandoning the texture of the event in its integrity and following out the relations of the individual strands. . . . Through regularity, quality, so to speak, dies in its tracks" (pp. 50, 51).

One would expect, therefore, that Professor Pepper would suggest harmony, intuition, and novelty as the formula for beauty. His answer is subtler, and most of the remainder of the book is devoted to giving it. As the author clearly shows, it is the artist's special business and challenge to utilize these obstacles to quality as instruments for the realization of it: to convert conflict, which in practical life is disturbing, to a means of intensification in art; to

transmit regularity, which in practical life is dullness, into a medium for emphasizing freshness and quality; to transform intellectual analysis into an organization totally apprehended, "the fused perception of the strands in a texture."

The field of the esthetic, according to Professor Pepper, is identical with that of quality. Quality is directly felt, intuited, apprehended. But his conception of intuition, if I understand him correctly, must be sharply distinguished from that of Croce or of Santayana. For the quality intuited is not that of a discarnate essence. It is a texture, often very complicated, and, besides, doubly incarnate. For the texture intuited involves the organization of the object, which in turn involves the schemes which its elements imply (as a note implies a scale), and also the interests, social, economic, and moral, of the observer or listener.

Professor Pepper describes his general approach as "contextualistic," to him a more accurate name for what the instrumentalists and pragmatists are driving at. This contextual point of view lends itself admirably to his enterprise in this book. For it enables the author to deal with the simple totality, the fused elements which constitute "esthetic quality" and yet to explain that fusion in terms of the "strands in a texture." The book, though short and not easy, is packed and meaty. For each chapter is an admirable study either of the fact of "quality," or the contexts in which quality varies, and the schemes on which it depends. Where others speak of "esthetic surface," Professor Pepper speaks of texture and context. For he realizes how much less *surface* esthetic surface is than is commonly supposed. It is what it is in the context of the schemas involved, the interest broached, the world evoked and brought into focus by the work of art itself. In terms of context he is able to distinguish "depths" from superficiality or thinness in a work of art; in terms of context he is able to show the nature of range and depth, and distinguish narrowness from range.

Professor Pepper also tries to deal with emotion in terms of his contextualist theory. The chapter on that baffling subject seems to me less satisfactory than any in his book, suggestive as it is. It is less satisfactory, perhaps, because his theory of quality as the function of strands in a texture does not quite so adequately cover the facts. He has earlier defined the field of esthetics as the field of quality and there will, I think, be few to quarrel with him on that score. He goes on (p. 89), however, to say that emotion is the "very essence of quality. It is the very quality of the event itself when this event is voluminous, intense, and highly fused." As I understand him, he is calling attention to the fact that esthetic perception is not merely sensuous notation, nor intellectual compre-

hension in the sense of a demonstration followed or assented to. It is perception, but it is perception fused, voluminous, and intense. It is what Santayana long ago called the perception of a value. He is pointing out, justly enough, that it is not the mere obvious elements of a picture or a musical composition that account for the enhancement of a quality found there. The most abstract music, the most abstractionist painting when it is experienced is *felt;* emotion is involved. Professor Pepper has a most ingenious theory to account for that feeling which is more than sensation registered, than an idea apprehended. Impulses are broached, often obscurely, whose conflict becomes objectified and to that extent reconciled in a pattern. The conflict is more obvious in music and drama, but it is present, too, in the plastic arts.

Professor Pepper contributes several suggestive passages in which he indicates the varied ways in which an artist may produce emotion: through direct stimulation, through representation, through expression. He makes very clear the difference between an emotion that arises directly out of the work of art and is the direct fusion of the details of the work itself, and one that is merely set off casually by the work, so that what is really present has very little to do with the emotion produced. A work of art may produce what one may call a relevant emotion or simply touch off a reverie or a reminiscence, as a passage in a symphony suddenly heard abroad may arouse an emotion of homesickness through recall of the place one first heard it, a nostalgia that may endure for the rest of the symphony and have nothing to do with it.

Despite Professor Pepper's excellent description of the conditions under which a work of art produces emotion and the kinds of emotion it may produce, it appears to me that he goes further than he intended to in identifying all quality with emotion, unless he is willing (as he does not seem to be) to say there is such a thing as a specifically esthetic emotion. If, as he tells us, all quality is emotion and all emotion is in essence conflict, he would have to identify all esthetic experience as the experience of conflict, and would thus have a hard time accounting for those qualities of a work of art in which perception, while alive and definite, is not, in the usual sense, in the least emotional. But I believe he has come as near explaining the place of emotion, where it is present, as any writer on esthetics. And here his contextualist theory serves him well. For he sees clearly that what stirs the lover of the art where he is stirred is the touching of deeply central human conflicts in the very texture of the work of art itself.

In the chapter on "Æsthetic Judgment" Professor Pepper traverses a territory which, it hardly needs to be said, has often been

traversed before. Nor need it be added that any crossing of such a terrain is beset with innumerable difficulties, not the least of which are logical ones. The root problem is still the one that Kant pointed out, the curious paradox that while esthetic judgments seem unique, they *claim* universality. The spontaneity of preference erects itself into the absolute of obligation. The "I like" translates itself into the "this is beautiful" and there is always a kind of *sotto voce* addition, "every normal person would have to agree that it is." Professor Pepper, out of modesty and good sense, I think, rather than caution, avoids purely dialectical argument about the nature of judgment. He tries rather to indicate in what sense we do make esthetic judgments, and to discover what there is that is reasonable about our doing so. His whole book is an attempt to indicate the ways in which artists lend or restore "quality" to our experience. Esthetic judgment is, then, simply the utterance of discrimination, made with exactness, subtlety, and warmth. Judgment is the comment of the "normal man" when operating at fullness of capacity. The physical work of art is simply the instrument by which quality is conveyed. Its efficacy depends on circumstances of physical observation, acquaintance with language of a given art, responsiveness to the interests touched off. The development of full discrimination implies imaginative reconstruction, and such reconstruction involves training. Esthetic judgment is not final; it is relative to an age, to an individual, to a group. But Professor Pepper plausibly suggests that judgments are more authoritative that have given evidence of initial sympathy and warmth, trained perception, and competence in discerning the strands involved in those textures which are apprehended as fused qualities. Judgment is simply discrimination, lively, experienced, and relevant. Its function is that of helping others to discriminate too. "When we judge that a man has good taste, we judge that he has the full capacity of imaginative construction relevant to the work of art or the type of art under consideration" (p. 243). Errors in judgment are simply failures in perception, and the value of experienced, exact, and warm discrimination is the value of liberating "quality" for others. For as Professor Pepper says, "nothing is valuable but the quality of something." A work of art is simply something which through exploitation at once ingenious and inspired of schemes and elements renders quality widely, deeply, vividly.

Professor Pepper's book doubtless raises as many questions as it answers. But the questions that it does answer it answers well, and they are highly important questions. For if we define the qualitative aspect of experience as the realm of art, and identify ultimate

value with quality, the fields of esthetics and of morals become continuous. Life is justified, as a work of art is justified, when it yields quality deep, widespread, and intense. And the schemes and organizations of life are justified, like those of art, by the extent to which they do yield quality in living.

I. E.

Hume's Theory of Knowledge: a Critical Examination. CONSTANCE MAUND. London: Macmillan & Company, Ltd. New York: The Macmillan Company. 1937. xxi + 310 pp. $4.50.

There is much competent philosophical analysis in this book; yet the book seems to the present reviewer to be one kind of improper non-historical treatment of history which ought never to be written. Mrs. Maund has not really given us a "critical examination" of Hume's theory of knowledge. She is interested in problems which he never raised and probably never considered. She grants that he did not give any clear answer to the problems, though she finds suggestions of what he might have said if he had studied in the University of London in the twentieth century. She thus misses most of what is genuinely important in Hume, and directs her energies to showing how much Hume's terms and ideas and theories would have to be altered before he gave an answer to her problems.

There is ambiguity enough in Hume's use of the term "object." But it might be doubted whether the ambiguity is removed by introducing the term "accusative." "An accusative," Mrs. Maund writes, "is what is expressed by the word or set of words which follow any verb expressing a cognitive act, for example, 'I know,' 'I perceive,' etc." (p. 35). If it is "the business of the epistemologist to show how many different kinds of accusative there are and to tell us something about each kind" (pp. 35–36), it would have been far clearer and far more just if Mrs. Maund had given us her epistemological reflections independently of any effort to utilize Hume's *Treatise* and *Enquiry* as preliminary excursions into epistemology in this sense.

S. P. L.

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REVUE PHILOSOPHIQUE. 63e Année, Nos. 7 et 8. Pensée pure, ou pensée technique? *P. Masson-Oursel.* Léon Chestov et la lutte contre les évidences: *B. Fondane.* La conscience et les mécanismes du cerveau: *W. Drabovitch.* Le temps vécu et le continu spatio-temporel: *F. Maugé.*

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DIE TATWELT. 14. Jahrgang, Heft 2. Die geschichtsbildende Kraft der Lebensanschauungen grosser Soldaten: *I. Clausewitz.* Das Vertrauen als ethisches Problem: *Bruno Bauch.* Grundsätzliches zum Descartes-Kongress: *Louis Lavelle.* Der Idealismus von Giovanni Gentile: *Marie Luise Gräfin Strachwitz.* Philosophie und Persönlichkeit: *Rudolf Eucken.*

NOTES AND NEWS

The annual Howison Lecture of the University of California will be delivered at Berkeley, September 15, 1938, by Sterling P. Lamprecht, Professor of Philosophy at Amherst College, on the subject: "Empiricism and Natural Knowledge."